



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

APR 24 2009

Honorable Brian M. Higgins
House of Representatives
Fenton Building
2 East 2nd Street
Suite 300
Jamestown, NY 14701

Dear Representative Higgins:

Thank you for your letter of March 11, 2009, written on behalf of your constituent, Ms. Diane Hofner, concerning human health and ecological benchmarks for heavy metals and carcinogens contained in bottom ash that is used for traction in roadways in Chautauqua County, New York.

The U.S. Environmental Protection Agency (EPA), Region 2 has reviewed your letter and has contacted Ms. Donna Coughlin of your staff for clarification on the request for information. In addition, we have spoken to Ms. Hofner at length about her overall concerns on the storage and use of bottom ash as a traction agent on roads. We also reviewed the document we believe was referred to in the table enclosed with your letter, EPA's Draft Human Health and Ecological Risk Assessment of Coal Combustion Waste.

Based upon your letter, and our conversations, we have enclosed information in response to your request. In the enclosures you will find language excerpted from the Draft Human Health and Ecological Risk Assessment of Coal Combustion Waste that defines the benchmarks used in that report, and a list of benchmarks that EPA Region 2 assembled for the parameters identified in the Table enclosed with your letter. The benchmarks we refer to are compiled from EPA's Integrated Risk Information System database, except for aluminum and cobalt (www.epa.gov/iris). The benchmarks for aluminum and cobalt are from EPA's Superfund Health Risk Technical Support Center and are called Provisional Peer Reviewed Toxicity Values. The ecological surface water benchmarks are EPA's National Recommended Water Quality Criteria (<http://www.epa.gov/waterscience/criteria/wqctable>). The Ecological sediment benchmarks are from NOAA Sediment Screening Tables (http://response.restoration.noaa.gov/book_shelf/122_NEW-SQuiRTs.pdf).

Please note that the compiled benchmarks are not necessarily the same benchmarks used in the risk assessment document. The final list of benchmarks for the risk assessment document is subject to change. Also, it is important to note that the compiled benchmarks do not represent clean-up values or final carcinogenic and non-carcinogenic risk numbers that would be generated from a formal risk assessment process. These numbers are benchmark values that may be utilized in a risk calculation process.

If you need further information, please let me know or your staff may contact Peter B. Brandt, Chief, for Intergovernmental and Community Affairs, at (212) 637-3657.

Sincerely,

A handwritten signature in black ink, appearing to read 'George Pavlou', with a long horizontal stroke extending to the right.

George Pavlou
Acting Regional Administrator

Enclosures

**Human and Ecological Risk Assessment of Coal Combustion Wastes
prepared for USEPA OSW
by RTI August 2007**

For a risk assessment, the toxicity of a constituent is defined by a human health or ecological benchmark for each route of exposure. A benchmark is a quantitative value used to predict a chemical's possible toxicity and ability to cause an adverse effect at certain levels of exposure. Because different chemicals cause different health effects at different doses, benchmarks are chemical-specific.

Human health benchmarks for chronic oral exposures were needed for the full-scale analysis. These health benchmarks were derived from toxicity data based on animal studies or human epidemiological studies. Each benchmark represents a dose-response estimate that relates the likelihood and severity of adverse health effects to exposure and dose.

Chronic human health benchmarks were used to evaluate potential noncancer and cancer risks. These include reference doses (RfDs) to evaluate noncancer risk from oral exposures and oral cancer slope factors (CSFs) to evaluate cancer risk from oral exposures.

The RfD is an estimate (with uncertainty spanning an order of magnitude) of a daily exposure to the human population that is likely to be without appreciable risk of deleterious noncancer effects during a lifetime.

The CSF is an upper-bound estimate of the increased human cancer risk from a lifetime exposure to an agent. This estimate is usually expressed in units of proportion (of a population) affected per milligram of agent per kilogram body weight per day (mg/kg-d).

Human health benchmarks are available from several sources. Health benchmarks developed by EPA were used whenever they were available. A list of benchmark sources can be provided if needed.

Ecological benchmarks used in the risk assessment are chemical stressor concentration limits (CSCs) which are chemical-specific media concentrations considered to be protective of ecological receptors of concern. They are media-specific environmental quality criteria intended to represent a protective threshold value for adverse effects to various ecological receptors in aquatic ecosystems (surface water and sediment).

Human Health Benchmarks

Cancer Benchmark (CSF)

Arsenic - 1.5E+00 (mg/kg-d)-1

Noncancer Benchmarks (RfDs)

Aluminum - 1.0E+00 mg/kg-d

Antimony - 4.0E-04 mg/kg-d

Barium - 2.0E-01 mg/kg-d

Boron - 2.0E-01 mg/kg-d

Cadmium - 5.0E-04 mg/kg-d (water)

- 1.0E-03 mg/kg-d (food)

Chromium - 3.0E-03 mg/kg-d

Cobalt - 3.0E-04 mg/kg-d

Copper - 4.0E-02 mg/kg-d

Lead - 0.015 mg/L (Drinking water MCL)

Manganese - 2.4E-02 mg/kg-d (water)

- 1.4E-01 mg/kg-d (food)

Mercury - 3.0E-04 mg/kg-d

Molybdenum - 5.0E-03 mg/kg-d

Nickel - 2.0E-02 mg/kg-d

Selenium - 5.0E-03 mg/kg-d

Silver - 5.0E-03 mg/kg-d

Zinc - 3.0E-01 mg/kg-d

Cyanide - 2.0E-02 mg/kg-d

Nitrate - 1.6E+00 mg/kg-d

Ecological Benchmarks

<u>Parameter</u>	<u>Surface Water Benchmark (ug/L)</u>	<u>Sediment Benchmark (ug/kg)</u>
Aluminum	87	----
Antimony	----	----
Arsenic	150	5900
Barium	----	----
Boron	----	----
Cadmium	0.25	596
Chromium	11	26,000
Cobalt	----	50,000
Copper	9	16,000
Lead	2.5	31,000
Mercury	0.77	174
Molybdenum	----	----
Nickel	52	16,000
Selenium	5	----
Silver	3.2	500
Zinc	120	120,000

Surface Water benchmarks are the USEPA National Recommended Water Quality Criteria.

Sediment benchmarks are from the NOAA Sediment Screening Tables.